

Application Serial No. 09/933,245
Date August 30, 2004
Reply to Office Action dated June 3, 2004

Listing of the Claims:

1. (Canceled)

2. (Canceled)

3. (Previously Presented) A valve assembly comprising:

a valve body defining an inlet, a controlled outlet and a passageway therebetween;

a valve stop and a valve seat supported within said valve body in axial alignment with said controlled outlet, wherein the valve stop includes a plunger-impact surface formed of a non-conductive material;

; and

a plunger reciprocable between the valve stop and the valve seat to open and close said controlled outlet, said plunger further including a pocket having a diameter, and a central bore having an insert molded therein to define a stop-cushion at an end proximal the valve stop and a valve tip at an end proximal the valve seat, wherein a portion of the valve stop is disposed within the pocket.

4. (Previously Presented) A valve assembly comprising:
a valve body defining an inlet, a controlled outlet and a passageway therebetween;
a valve stop and a valve seat supported within said valve body in axial alignment with said controlled outlet, wherein the valve stop includes a non-conductive insert received in an end proximal the plunger;
; and
a plunger reciprocable between the valve stop and the valve seat to open and close said controlled outlet, said plunger further including a pocket having a diameter, and a central bore having an insert molded therein to define a stop-cushion at an end proximal the valve stop and a valve tip at an end proximal the valve seat, wherein a portion of the valve stop is disposed within the pocket.

5. (Canceled)

6. (Currently Amended) ~~The valve assembly of claim 5,~~ A valve assembly comprising:
a valve body defining an inlet, a controlled outlet and a passageway therebetween;
a valve stop and a valve seat supported within said valve body in axial alignment with said controlled outlet; and
a plunger reciprocable between the valve stop and the valve seat to open and close said controlled outlet, said plunger further including a pocket having a diameter, wherein said pocket receives a spring that urges the plunger toward the valve seat to close the passageway, wherein the spring has an outer diameter at least 50% of the diameter of the pocket;- and a central bore having an insert molded therein to define a stop-cushion at an end proximal the valve stop and a valve tip at an end proximal the valve seat, wherein a portion of the valve stop is disposed within the pocket.

7. (Canceled)

8. (Previously Presented) A method of manufacturing a valve assembly having a plunger reciprocably moveable within the valve assembly between a valve stop and a valve seat, the method comprising:

providing a conductive elongated plunger body having a central bore formed therein;

molding an insert within the plunger body to define a stop-cushion at an end proximal the valve stop and a valve tip proximal an end proximal the valve seat;

providing a bore in an end of the valve stop;

and press fitting a non-conductive insert into the bore of the valve stop.

9. (Cancelled)

10. (Previously Presented) The valve assembly of claim 4, wherein the portion of the valve stop disposed within the pocket is at least a portion of the non-conductive insert.

11. (Previously Presented) The valve assembly of claim 10 wherein the non-conductive insert has an annular shoulder for retaining a spring within the pocket of the plunger.

12. (Previously Presented) The valve assembly of claim 11 wherein the pocket has a predetermined diameter and the spring has an outer diameter at least 50% of the diameter of the pocket.

13. (Currently Amended) ~~The valve assembly of claim 2 further comprises~~ A valve assembly comprising:
a valve body defining an inlet, a controlled outlet and a passageway therebetween;
a valve stop and a valve seat supported within said valve body in axial alignment with said controlled outlet;
a plunger reciprocable between the valve stop and the valve seat to open and close said controlled outlet, said plunger further including a pocket having a diameter, and a central bore having an insert molded therein to define a stop-cushion at an end proximal the valve stop and a valve tip at an end proximal the valve seat, wherein a portion of the valve stop is disposed within the pocket; and
a solenoid assembly and a non-conductive insert extending beyond the end of the valve stop, wherein the conductive bodies of the valve stop and the plunger are separated by an air gap for creating a path for magnetic flux travel when the solenoid assembly is energized.

14. (Previously Presented) The valve assembly of claim 11, wherein the spring is mounted about the non-conductive insert.